

REMARKS

The Official Action mailed July 17, 2003 has been received and its contents carefully noted. Filed concurrently herewith is a *Request for Three Month Extension of Time*, which extends the shortened statutory period for response to January 17, 2003. Accordingly, Applicant respectfully submits that this response is being timely filed.

Claims 1-7 are pending in the present application, of which claim 1 is independent. Applicants appreciate the indication that claims 2, 3/2, 5 and 6/3/2 are allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For the reasons set forth in detail below, all claims are believed to be in condition for allowance and favorable reconsideration is requested.

Paragraph 3 of the Official Action rejects claims 1-7 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. That is, the Official Action rejects claims 1-7 as lacking support. Paragraph 3 of the Official Action further rejects claims 1-7 under 35 U.S.C. 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

Specifically, the Official Action asserts that the specification does not enable or have a full, clear, concise and exact written description of the rotor magnets positioned around the periphery of the rotor fan on the surface of the heat plate and particularly does not include a written description of the rotor magnets positioned on the surface of the heat plate as recited in amended claim 1.

Applicant respectfully disagrees. Amended claim 1 does not recite that the magnets are positioned on the surface of the heat plate as asserted in the Official Action. Rather, amended claim 1 recites "rotor magnets that are part of the rotor fan and are positioned around a periphery of the rotor fan on the surface of the heat plate . . ." This is described in paragraphs [0015] and [0027] of the specification and shown in at least Figure 2 of the present application wherein rare earth magnets 8 are shown at the outer periphery of rotor 10. Thus, as recited in claim 1, the rotor magnets are part of the rotor fan and are positioned around a periphery of the rotor fan as

described in the specification and it is believed that such limitation is both adequately described and shown in the specification and that the specification and drawings would clearly enable one of skill in the art to make and/or use this feature of the invention. In order to further clarify this feature and avoid any unnecessary ambiguity, the phrase "on the surface of the heat plate" has been deleted from claim 1 to avoid any possible indefiniteness of this limitation. Favorable reconsideration of the outstanding rejection is requested in view thereof.

Paragraph 5 of the Official Action rejects claims 1-6 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Official Action notes several minor antecedent basis issues that are corrected by the amendments submitted herewith. With respect to the objection to the limitation of "the object to be cooled" in claim 1, this limitation is believed to be introduced in line 6 of claim 1 above. These amendments do not narrow the scope of the claims and merely correct these minor matters of form. With these amendments, the claims are believed to be in accord with 35 U.S.C. 112 and favorable reconsideration is requested.

Paragraph 7 of the Official Action objects to claim 7 under 37 C.F.R. 1.75(c) as being in improper form because multiple dependent claim 7 depends from multiple dependent claim 3. In response, Applicants have amended claim 7 to correct the dependency and this rejection is believed to be overcome by these amendments. Reconsideration is requested.

Paragraph 9 of the Official Action rejects claim 1 as obvious based on the combination of U.S. Patent 5,583,746 to Wang and U.S. Patent 5,979,541 to Saito. Paragraph 10 of the Official Action further rejects claims 3/1 and 6/3/1 as obvious based on the combination of Wang and Saito.

As stated in MPEP § 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim

limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

It is respectfully submitted that the present invention is distinguished over Wang and Saito, taken alone or in combination, by at least the claimed shape of the fan in claim 1 of the subject application. That is, the fan of the present invention has two-step blades having an inner and outer portion. The blades of the fan at the inner portion are set at an angle such that air is moved from openings in a direction of rotational thrust (i.e. in a direction perpendicular to the surface of the heat plate). The fan blades at the outer portion are set at an angle such that air is moved in a radial direction toward the outer periphery of the rotor fan. See at least paragraphs [0029] and [0030] in this regard. Thus, the present invention includes a fan having fan blades at an inner portion set at an angle to move air in a first direction (a direction of rotational thrust) and at an outer portion being set to an angle to move air in a second direction (a radial direction).

This feature of the present invention is recited in claim 1 of the present application as follows:

having blades of the rotor fan each formed in a same gentle arc, and in the inner portion of an inner/outer two-step multi-blade form of the rotor fan, the blade being set at an angle to move the air through openings in the direction of rotational thrust toward an air intake, and outward from a central section, the blade which is set at the angle pushing the air in the radial direction of rotation.

It is respectfully submitted that the Wang and Saito, whether taken alone or in combination, fail to disclose or suggest this feature of the present invention. In

Paragraph 12 of the Official Action, *Response to Arguments*, it appears that the Official Action asserts that Saito teaches an inner radial fan 723 that mates around the lid 4 and clearly shows the air coming in the intake opening in the plate 4 and moving out radially. It appears, however, that Saito still fails to disclose the above noted feature of a fan having two-step blades having an inner and outer portion, wherein the blades of the fan at the inner portion are set at an angle such that air is moved from openings in a direction of rotational thrust and the blades at the outer portion are set at an angle such that air is moved in a radial direction toward the outer periphery of the rotor fan. Specifically, the blades of Saito do not appear to have two portions having different angles as claimed. Rather, Saito describes in the Abstract that:

The outermost diameter b of the large diameter part 722 of the fan blades 72 is set so that it is larger than the inner periphery of the aperture 42, and the outer diameter c of the inner diameter part 723 of the fan blades 72 is set as smaller than the inner diameter of the aperture 42. Due to this composition, in accordance with a cooling fan and cooling fan assembly of the present invention, the cooling effect is improved, because it is possible to improve the force of the air current without thickening the thickness of the cooling fan, in conjunction with it being possible to prevent the extraction of the rotor from the aperture.

Saito, however, is silent about any difference in the angle of the fan blades between an inner and outer portion as recited in claim 1. It is respectfully submitted that since Saito and Wang, whether taken alone or in combination, fail to disclose or suggest all the claim limitations, that a *prima facie* case of obviousness cannot be maintained for at least this reason and favorable reconsideration is requested.

It is further respectfully submitted that the Official Action has failed to provide a sufficient showing that one of skill in the art would have been motivated to combine the teachings of Wang and Saito to achieve the present invention. In paragraph 12 of the Official Action, it is asserted that Wang teaches a cooling structure for a CPU 50, but does not teach the specifics of the motor and that Saito teaches a motor for a fan for cooling the CPU. The Official Action apparently asserts that the disclosure in Saito that the motor provides improved cooling efficiencies and the design prevents the extraction of the rotor would motivate one of skill in the art to combine the teachings of Saito and

Wang. Similarly, in the Official Action mailed January 3, 2002, it is stated that one of skill in the art would construct the cooling device of Wang with the motor of Saito to improve the cooling effect of the fan and prevent extraction of the fan through the intake aperture.

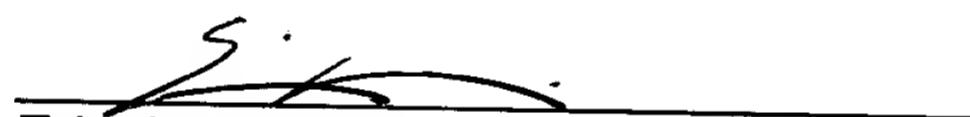
It is respectfully submitted that the Official Action has failed to carry the burden of showing that one of skill in the art would have been motivated to combine the reference teachings. If one of skill in the art wished to improve the cooling effect of the fan and prevent extraction of the fan through the intake aperture (the asserted motivation in the Official Action), one need look no further than Saito. Saito provides such a structure and given this motivation, one of skill in the art would apparently not need to combine the device with Wang to achieve this advantage.

It is understood that the test for obviousness is not whether the features of the secondary references may be bodily incorporated in the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references, but rather the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. It is further noted, however, that the burden of showing sufficient motivation to combine references lies with the Office. MPEP § 2142 states "The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness." MPEP § 2142 further states: "The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. 'To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.' *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)." Furthermore, the fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). See MPEP 2143.01.

In the present application, it is respectfully submitted that the references do not expressly or impliedly suggest the claimed invention and that the examiner has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. The asserted motivation in the Official Action does not require one of skill in the art to combine the teachings of Wang and Saito since such advantages are achieved by Saito alone. Furthermore, the fact that one of skill in the art could combine Saito and Wang to achieve the present invention is insufficient to establish a *prima facie* case of obviousness absent some suggestion that one of skill in the art should combine the references. It is respectfully submitted that such showing is lacking in the present application and favorable reconsideration is requested for this further reason.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

  
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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

1. (Amended) A very thin fan motor with heat sink attached which is a fan motor mounted in various kinds of electronic equipment that need to radiate heat, for the purpose of using air for a cooling effect;

characterized by having a fan motor mechanism that comprises a heat plate that supports a rotor fan that can rotate in a central position and that has a contact surface that matches the shape of [the] an external surface of an object to be cooled, rotor magnets that are part of the rotor fan and are positioned around a periphery of the rotor fan [on the surface of the heat plate], and a stator coil substrate;

by having blades of the rotor fan each formed in a same gentle arc, and in [the] an inner portion of an inner/outer two-step multi-blade form of the rotor fan, the blade being set at an angle to move the air through openings in the direction of rotational thrust toward an air intake, and outward from a central section, the blade which is set at the angle pushing the air in the radial direction of rotation, which is toward the outer periphery of the rotor fan, and the outer step that reaches beyond a raised central portion of the heat plate reaching down toward the object being cooled, in such a way that the outer step of the arced blades of the rotor fan is near to stacked heat radiation fins, the rotor fan with the two-step multi-blade form being shaped like an inverted saucer;

by having multiple thin metal heat radiation fins with excellent thermal conductivity arranged in parallel at fixed intervals above the heat plate outside the rotor fan as cooling heat-radiation fins;

and by combining the function of cooling heat sink with the heat radiation fins that conduct the heat absorbed from the heat plate and radiate it away by the action of the air moved by the rotor fan.

3. (Amended) A very thin fan motor with heat sink attached at described in claim 1 or 2 above, in which multiple heat radiation fins are stacked with a given interval .

between them and are connected by a heat conducting material or fittings, and in at least two diagonally opposed corners of the multiple heat radiation fins, a heat sink unit and [the] a stator unit are fixed together in a simple assembly process.

7. (Amended) A very thin fan motor with heat sink attached as described in one of claims 4 through [6] 5 above, wherein the material with excellent thermal conductivity is precious metal or copper.